MTARA NEWS

| JANUARY 2021 | *Mountain Top Amateur Radio Association* |

President Vic's Message

Greetings from your President, Vic, KK6WKI.

Happy New 2021! Wow, we are still in lockdown, who 'woulda thunk it? The vaccines are being manufactured, shipped and will soon be available to the "senior" set. Will you take it if offered?

Quartz-Pause is right around the corner, January 17-23. Don't forget that is followed up by **Winter Field Days** on January 30-31.

I just stumbled on this **website** that may be of **benefit to our newer hams**. This person went to a lot of work and it seems to be quite thorough. This informal, brief, and semi-non-technical glossary of terms might help. Hover over a word in green for a brief clarification. Click on a picture to display a larger or clearer version. This glossary includes many of the terms found on the licensing exams. Some of these terms are not unique to ham radio, but might be used heavily in the ham community. For fun, click "Expand all" sections and browse the pictures.

We welcome two new members, Steve Combs, KN6LUR from Big Bear City and Tom Crosser, K7XCB from Del Mar. It's nice to have you both!

Fire season isn't over yet, we need some rain and for the manly and womanly folks in the high country, (RS, GVL and BB) some snow! Stay radio-active and as always, ***if you see something, say something!***

73, Vic

Monthly Club Meetings

Our monthly meetings are on the first Tuesday of each month. **January 5 is our next Zoom meeting.** You will soon receive the login credentials.

The virtual meetings begin at 7:00 p.m. and last until about 8:00 p.m. Our meetings are open to everyone, licensed amateur radio or just interested parties. Our purpose is to provide educational opportunities, mentoring, radio communication training and providing radio communications for community events.

For our virtual meetings, interested parties, NOT members of the club will need to email **tracy@lenocker.com** with their name and callsign. The credentials for the meeting will then be emailed to that person.

See and hear you Tuesday, January 5, 2021!

Treasurer's Report - KK6LWH

Our opening balance was $9,336.92, deposits for December were $855.00. There were no expenses for the month and the total funds on deposit in our account is now $10,191.92 as of December 17.

73,

Patty

Editor's Update, Contest University - K6WDE

On January 23 (yes, it is the last day of Quartz-Pause) from 8 a.m. to noon, DX Engineering and ICOM will be sponsoring Contest University with a topic of "**The 2021 Propagation Summit**". The Summit will be held via **Zoom Webinar** and the signup and other information is on the link above. There will be four 1 hour sessions in this summit, all worthy and interesting topics. To entice

you even further, there will be a drawing for an ICOM IC-705 at the end of the seminar. You DO need to be present to win! Put this event on your calendar.

CQ, CQ - VU2RNC calling

On the morning of November 11th as Jodi and I were finishing breakfast and siting around the table we heard a call on MTARA2.

I listened to hear if I knew the person's call sign. Jodi said the person had an Indian accent. I stepped over to the radio and heard "VU2RNC VU2RNC calling QRZ".

I responded back with my call sign. He came back and I noticed that he was on Echolink and through our MTARA2 repeater. He said his name was Ram and calling from Agra, India. I gave him my name and we had a nice conversation about the time of day in each location and the weather reports. I told him we were about 5° Celsius (42°F) and he said it was 20°Celsius (68°F) in Agra.

The Echolink was perfect and the MTARA2 repeater was working just great. Ram said that I was coming over with perfect audio and a 59. He was the same back to me. There was less delay in the Echolink switching than we seem to have on our Monday night nets.

We wished each other and our families well and said 73.

It was a very fun and unplanned experience that morning.

Tracy and Jodi, WM6T and WA6J

Why Am I Not Called by Net Control and What is "Round Robin"? - WM6T

Some of our new members may wonder why their names are not called on the Monday night net. So let me explain how that all works.

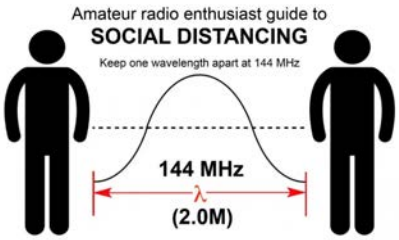
Any new member is on the list to be called at the beginning of the first month as a full member. If you joined in the first week of November you will not be on the roster until the December entire database list is updated.

If during any month, you do not check in at least once on RF or via Echolink you are dropped from the call list and placed on the QRX list. You are still listed but will not be called. If you have not been called (because you are on the QRX list) just check in at the end of the net and you will be added back to the main list next month.

So basically, we have a single roster from which about 80 are called each week. There are another 80 on the QRX list who have not checked in for an entire month or are not licensed. If you check in even once in a month you will be on the call list the following month. As mentioned previously, if you do not check in for an entire month you are moved down and placed on the QRX list.

There is a simple sorting algorithm we use which basically places the single members at the top followed by family members. That way the Net Control Operator (NCO) can call a family as a group and does not have to take extra time calling each one at a time. Gordon and Suzi are put on first because Gordon has another net at about the same time.

Our net is a friendly net and we promote your sharing of information about anything related to ham radio or personal happenings. We do this at the end of the net. So if you have something to share just let the NCO know you have something for "Round Robin". After Christmas someone might have a new antenna or radio or maybe your antenna broke with the strong winds or you are on the list to get a COVID-19 vaccination. Whatever you would like to share with the group is just fine.



In the field with the Antenna Team!

Assunta, KJ6FQP, one of our newer MTARA members had decided that she wanted a base station installation for VHF/UHF.

She asked for help from our MTARA antenna survey and installation team. A few months earlier, Tracy, WM6T, and Jodi, AA6JL met at Assunta's house in

Riverside and did some testing for the possible installation of an antenna as part of the location survey. One of the most interesting things we discovered was directly across the street there was a hill, or maybe it would be better classified as a mountain. We are not talking about down the street or a short distance away, it was directly across the street and in a north direction from her house. One of the photos in the article shows the "hill".

Assunta purchased the necessary equipment and the club loaned her one of the loaner radios. On November 20th the antenna team consisting of Vic, KK6WKI, Gary, AA6GJ, Bill, KK6TVB, Rick, KK6GWO and Tracy, WM6T met at Assunta's house for the installation. Everyone brought some tools – just in case Tracy forgot anything – again.

After some discussion among the group it was decided to mount the mast and antenna on the northwest corner of her two story home using 6-inch offset eave mounts with about 12 feet of mast.

The work was split up with Gary showing Assunta how to hook up the radio and power supply, Rick applying the No-Ox to the mast connection points. Vic and Bill set up the extension ladder and started to place the eave mounts. Tracy did his best work supervising and staying back.

While a few members of the team were installing the mast and antenna, others had fun drilling a hole through the stucco wall in to Assunta's room where the radio was to be installed. Amazingly with accurate planning the drill missed all studs and electrical wiring.

An 8-inch barrel connector with water tight rubber washers was installed for the coax pass through.

Bill installed the coax to the antenna and placed the radios and tightened them down. With the mast and antenna up and mounted the end of the coax was connected to the barrel connector. All external connections were waterproofed.

Inside the house a short piece of coax connected the barrel to the radio. Now with the antenna connected and power applied to the pre-programmed radio the test was made. The hill still was a significant problem for MTARA2 and MTARA5 but clear on CBARC and fairly good on Keller.

Over all we began the installation began around 10:30 a.m. and we finished a little after noon. Once we finished Assunta provided a home cooked lunch which consisted of a **casserole, salad, and home baked apple pie.**

Assunta has a great connection to CBARC and is now checking into the **TechNet**.

We plan on heading over and trying a directional antenna and possibly raising the mast another 8-feet with the additional mast sections we did not use. These considerations might help the transmission and reception for MTARA2 and MTARA5 which worked during the original field survey.

So in a few months look for an update on what we have done to make this a bit better. And NO we are not going to haul 1000 feet of coax up the mountain and mount the antenna there or dig a tunnel though the hill but on second thought maybe we should contact Elon Musk's Tunnel Boring Company to try out their newest machine.

Online Zoom tech meetings

Our Zoom meetings are on THURSDAYs at 2:00 p.m. Check out the MTARA Website home page for a listing of what each of the presentations will be about. If you need help setting up Zoom on your laptop or smart phone please contact Tracy, WM6T, who will help you get set up and running.

Echolink Update

We now have Echolink capability on two of our repeaters. These are MTARA2 (Channel 12) and MTARA5 (Channel 15) which are 2-meters and 1.25-meters respectively. The Echolink on MTARA2 is still the same and the call sign is WM6T-L. The newest Echolink capability is on our MTARA5 channel which is our private 220 repeater. The call sign is WA6MTN-R. It is now fully functional but might get a few tweaks over the next month or two which should not affect any use. This capability on MTARA5 will allow more members to participate in the Tuesday night discussion nets and for the ladies in the Friday YL Happy Hour net. Both Echolink systems are available 24/7.

Next Month's Newsletter . . .

Are you interested in filling this up with valuable stuff? Well, send your cool article to Dave, K6WDE and get published!

Local Weekly Nets

	Repeater	Time	Activity	Purpose
Monday	MTARA-2	7:00 p.m.	Weekly Check-in	MTARA news
Monday	144.330 Mhz	8:00 p.m	'Gordo' net	Simplex readiness
Tuesday	MTARA-5	7:00 p.m.	Weekly Check-in	Tech discussions
Wednesday	HF	7:30 p.m.	7.223 Mhz	Band(s) status
Friday	MTARA-5	5:00 p.m.	XYL Happy Hour!	It's Friday!
Daily	CBARC	7:00 a.m.	Technet	Elmer sessions

Membership Info

Membership in the Mountain Top Amateur Radio Association© is open to any person interested in learning more about Amateur Radio. Members do not have to be a licensed Amateur Radio Operator to be a member but licensure is recommended. Members must be active in club activities which includes trainings, events, club meetings and Field Day. Membership is on an annual basis and is from January1 to December 31 of each year. There are no prorated memberships. The annual membership is $20 for a single member or $30 for an entire family.

Current members do not need to fill out the renewal application form for 2021. You can just mail your check to MTARA, PO Box 2441, Lake Arrowhead, CA 92352-2441. We already know who you are. Those who joined in November or December of this year are already paid for 2021. The membership form can be downloaded by **clicking here**.

How N6NTJ got started with Amateur Radio!

It all started in the 70's, with being interested in sailing down the Pacific Baja coast and up into the Sea of Cortez.

We took classes at Coastline Orange Coast Community College that included Cruising Mexico, Medicine at Sea, Cruising at Sea, Novice Amateur Radio class and Spanish Language Course for Radio Amateurs. We learned what paperwork needed to be prepared for entering into and leaving out of the Mexican ports.

Our first sailboat my ex and I got was a 21-foot Islander (no standing headroom). We sailed numerous times up and down the CA coast. We sailed to Santa Barbara Island, Channel Islands and many trips to Catalina while preparing and outfitting the boat for our Baja cruise.

We begin our cruise from Dana Point down the Pacific coast of Baja to Cabo San Lucas in November 1977. We spent 6 weeks cruising down the coast to Cabo San Lucas. As a crow flies, it is approximately 780 miles. But we took our time, so we could explore every anchorage. We were never in a hurry, took our time, so we were never late.

We had no navigation, no GPS, no VHF marine radio and no Ham HF radio. We had a compass, charts and EPIRB (emergency position indicating radio beacon).

When in an anchorage and we wanted to call home, we would row ashore in our dingy. Then find a place that had a phone tourists could use. There always was a person to make the phone calls. The phone could be anywhere in the town. You would give the phone number to the person in charge of placing the calls. The call would go from Baja to Mexico City, then to the States. Sometimes it would take hours for the call to go through or maybe no connection at all.

We met two other boats about the size of ours. It was two Kayakers. A man and women, who had kayaked from Canada or Washington. They were planning to go to Cabo, the mainland of Mexico and down to South America.

The Mexican fishing men enjoyed making fun of our small boat and outboard engine. Their Pangas were about the same length as our boat. Their outboard engine won't even fit on the back of our boat. They would pull up alongside laugh and point. The upside was, they would throw freshly caught lobster and fish in our cockpit.

We had WAY more FUN than expected. We spent so much time in the Sea of Cortez, we ran out of time to sail back home. It is uphill going home and hurricane season was coming. We chose to spend more time in Mexico and trailer home.

We decided our next trip we would have a ham radio. We wanted to make phone patches, check weather and meet other hams. We also decided it would be nice to have a little larger boat and one we could stand up in.

After our return to Dana Point, we started looking for a little bigger boat. We got a 26-foot Columbia sailboat. It had an 8-foot beam, 4-foot draft, 2300 lbs. Lead Ballast, 5200 lbs. displacement, 25-gallon water tank, 6 feet standing head room, full main and jib. We started preparing and outfitting the boat for our next cruise.

We went to HRO to look at radios. With their experience of helping boaters, we picked out a radio. We walked out the door with ICOM 730 and a Cubic antenna tuner. For the antenna we got two fiberglass mobile whip antennas. HRO gave us the frequencies for the Baja and Mañana nets to check into when we headed south. They gave us some phone numbers of some local hams that would help with setting the radio and antenna up on the boat. That was the start of meeting some of the best hams.

There was one fiberglass mobile whip for 20 meters and one for 40 meters. The antenna whips needed to be changed to match the frequencies. The antenna whip screwed into a base that was clamped to the stainless steel stern rail. The coax came down to and

through the deck to the radio. The antenna was grounded to the 2,000 pounds lead keel, with a solid copper strap one inch wide connecting the stern to the keel.

We also had a solar panel. It was 1970/80s solar panel technology. Solar panels have come a long way since then. *It was less than one amp!* Main solar wired directly to main 12 volt deep cycle lead acid battery. There were 2 batteries, main and backup. The backup battery was connected to a small trickle charger solar panel connected directly to the backup battery. There is a 5 amp maximum 12 volt charger on the Honda 7.5 horsepower outboard motor.

Our second trip down the Pacific coast of Baja was a little more challenging weather wise. We gunkholed (yes, its a term, look it up - Editor) all the way down the Baja coast. Hurricanes season lasted longer into the year. We took about seven weeks to sail to Cabo. Part of the time was spent waiting out the November and December storms in various coastal anchorages. One time we were behind a little island with five anchors out. I felt like I was in a washing machine for 3 days. There was a big Mexican fishing boat anchored behind the island too. They keep dragging anchor. Four Spanish speaking fishermen came over in their dingy. I thought they asked for a knife. Which I thought was weird. I came out with a knife and freaked them out. What they wanted was a deck of cards. They were bored waiting for decent weather. So much for my Spanish. We did take along extra packs of cards and gave a pack to them. Days later when we saw them pull up their anchor and leave; we figured it was safe to head south again.

Thanks to ham radio operators and the nets, we were warned of bad weather. Luckily we stayed anchored until the weather got better and missed the late storm that hit Cabo. There were many boats lost that season. We made that left turn around the Cabo rocks and saw the graveyard of boats that went ashore. The hurricane/ wind/waves were so strong it caused around 30 boats to get tangled up and pushed on shore. We were very grateful for the land ham radio operators for passing health and safety and weather messages to fellow boaters, friends and family. And there just to talk.

The maritime nets for Baja and Mexico are on every day. You can locate other boats, pass messages to fellow cruisers, family and get the weather. We mostly checked into the **Baja net** (7.238 MHz) and the **Mañana net** (14.340 MHz). 14.300 MHz has ham operators monitoring in case of emergency all hours. There was a few times on the Baja and Mañana net, it was recommended we stay anchored due to bad weather coming our way. And, of course we listened.

We met hams over the radio air waves who followed us the whole time on our cruise down the Baja coast, the Sea of Cortez and the mainland side of Mexico. They would do phone patches to my mom. My dad was in very ill health. They would call her and tell her what anchorage we were in, even if they didn't do a phone patch. Sometimes they would call her for a chat to make sure she was okay.

When we returned to the States, we were able to meet some of the hams we only knew by call sign in person. One of the hams that followed us the most and made phone patches, was blind. I had no idea until I met him in person.

Well, that's it. That's how it started. - Jo

Upcoming Calendar of Events

Activities that MTARA will be participating in or supporting during the upcoming months:

- MTARA monthly meeting - January 5 at 7:00 p.m.
- **Quartzfest (Pause)**, January 17-23, 2021. Remember, social distancing out in the desert!
- **Winter Field Day**, January 30-31. Come out and play radio, put on those hats and scarves!

Upcoming VHF/UHF and HF Ham Radio contests or special events

A few fun events that club members can participate in and/or sharpen their communication skills with!

- **Slow Speed Con(Test)** for CW operators, 00:00-01:00 UTC **EVERY Monday** (4:00 - 5:00 p.m., US PST Sundays), a great learning tool for us new operators!
- **Weekly Phone Fray** by NW2K. A great way to get your feet wet for 30 minutes. It is **weekly on Tuesday** nights from 6:30 p.m. to 7:00 p.m. PST on SSB. The rapid-fire exchange is OP name and location ('Dave CA', e.g.). Folks start on 15 meters and then migrate to 20, 40, 80 and even 160 meters, its fun to watch the bands change as seasonal propagation does!
- **ARRL January VHF Contest**, all legal modes permitted (SSB, CW, digital) January 16-18
- **NCJ 2020 North American QSO Party** (CW/ SSB), CW: 1800 UTC January 11 to 0600 UTC January 12, 2020; SSB: 1800 UTC January 18 to 0600 UTC January 19, 2020

MTARA jackets - Great New Year Gifts!

We have finally decided on our optional MTARA jackets. Two colors are available which are forest green or black. The forest green matches our polo shirts. Sizes available range from small to 6X. Here is a list of the sizes and **prices that include the lettering and sales tax.**

The Port Authority jackets without the $6.00 name, call sign and MTARA logo are approximately $6.47 less.

If interested, you need place your order with Mary at Classic Images in Crestline. Her number is 909-338-2281. She is there Tuesday through Friday and the address is 23723 Rocky Dell Drive, Crestline, CA 92325.

Size	S	M	L	XL	2X	3X	4X	5X	6X
Price	$45.23	$45.23	$45.23	$45.23	$46.31	$48.47	$49.54	$51.70	$52.78

MTARA NEWS

| JANUARY 2021 | *Mountain Top Amateur Radio Association* |

Welcome to "Ponder the Pool" by AA6GJ

Ponder the Pool is my column for the MTARA Newsletter. Every month, I pick a point to ponder (a question) from one of the three FCC question pools, and try to explain it more, and review the concepts because,

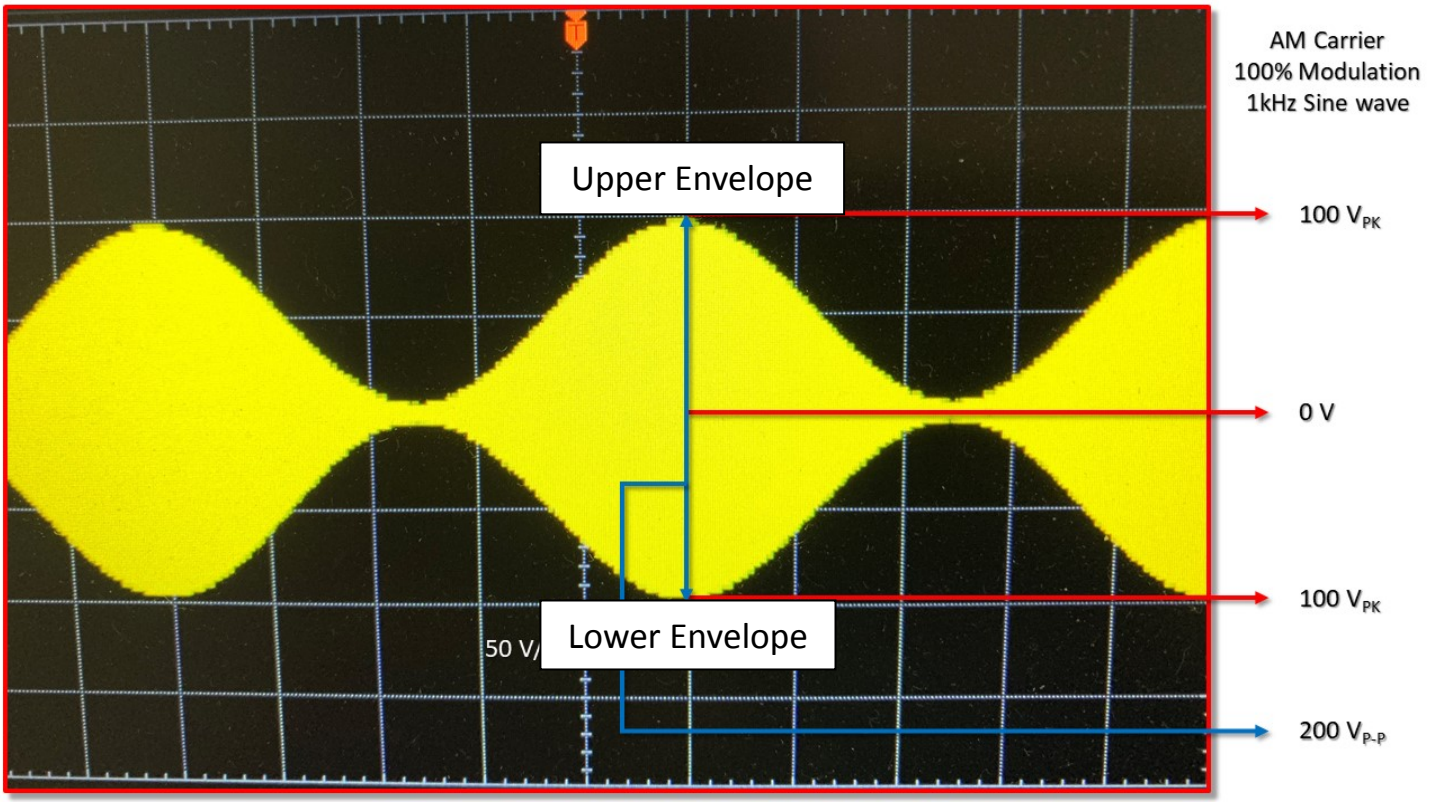
"If you don't use it, you lose it!"

This month's article is a continuation from last month's topic, "Peak Envelope Power (PEP)". This time, we will ponder two similar questions from the General Class pool: Question No. G5B11 and G5B13

G5B11 – What is the ratio of peak envelope power to average power for an unmodulated carrier?
G5B13 – What is the output PEP of an unmodulated carrier if an average reading wattmeter connected to the transmitter output indicates 1060 Watts?
These two questions are similar because they both deal with an *unmodulated* carrier and *peak envelope power* (*PEP*).

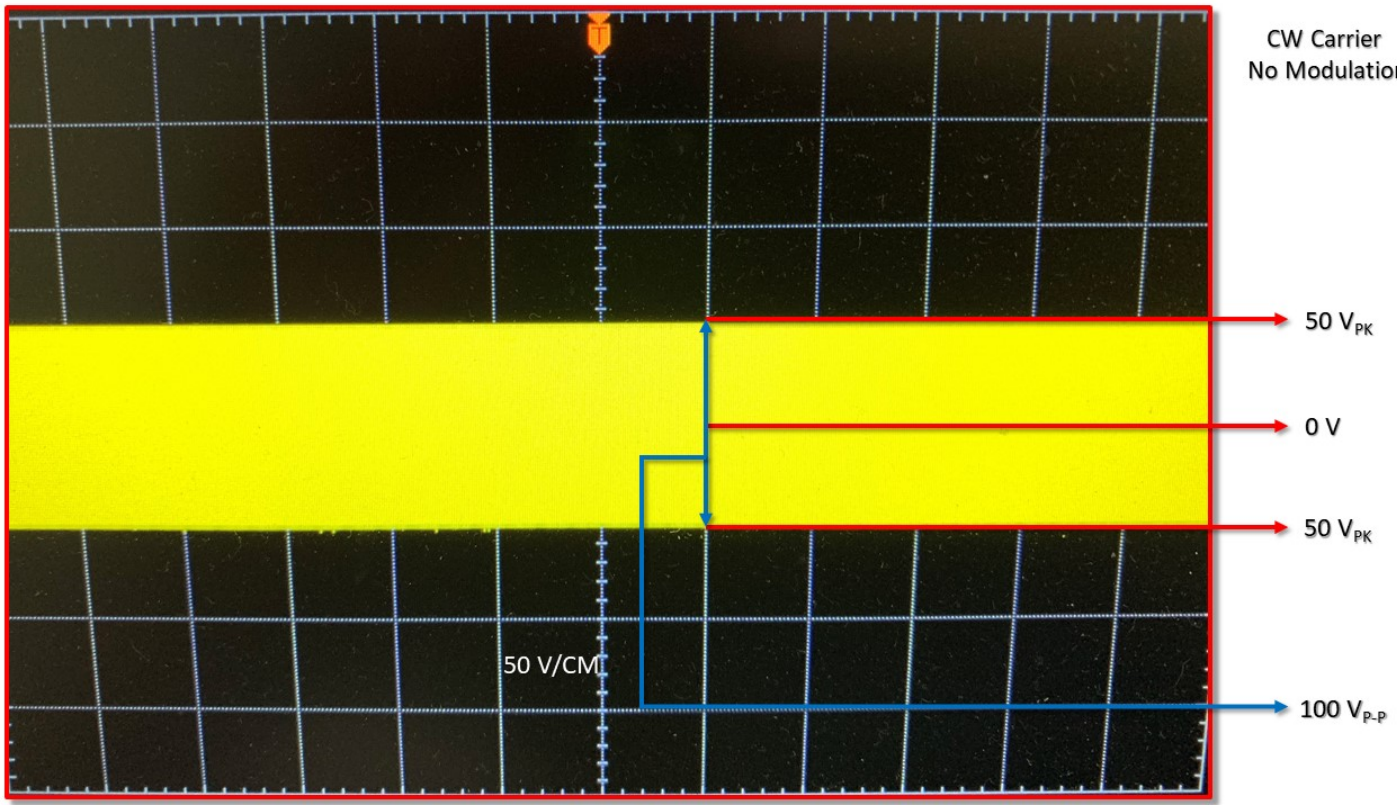
Let's review our discussion of last month's question. The photo below illustrates the Amplitude Modulated carrier wave that we used in last month's article. After we interpolated all of the math, we came up with our equation, $PEP = \frac{E_{RMS}{}^2}{R_L}$. *"E"* was derived from the peak-to-peak voltage by dividing it in half, and then multiplying that number by 70.7% (0.707), squaring that, and dividing all of it by our load resistance of 50 Ohms, to finally come up with this equation, $99.97\ W_{PEP} = \frac{(0.707 \times 100\ V_{PK})^2}{50\ \Omega}$.

As you may recall, the answer to the question was 100 Watts because that was the closest to 99.97 Watts.



One thing we did not discuss was the ratio of peak envelope power to average power which is one of this month's questions. $Ratio = \frac{100\%\ Mod.\ PEP}{Unmodulated\ (Average\ Power)}$ so, $4 = \frac{99.97}{24.99*}$. This is a 4:1 ratio. This also means that PEP is 4 times the carrier power! WOW! That is why you have a carrier (CAR) control on your HF rig. If you are going to use the AM mode, and you have a 100 Watt rig, you want to adjust your carrier power level to 25 Watts because at 100% modulation you are actually transmitting 100 Watts PEP!

Now, I will show you how I arrived at this answer.



This photo illustrates the same carrier wave ***without*** any modulation. It's just 7,250,000 Hz. sitting there all by itself. This is what we call *Continuous Wave* (CW). If we were to transmit this signal on an HF transmitter, and then tune a receiver away from 7.250 MHz., let's say to about 7,250,500 Hz., we would hear a steady tone.

At this point, I could connect a telegraph key to my transmitter, turn this steady carrier on and off with the key, and listen on that same receiver at the same 7,250,500 Hz frequency; I would hear dits and dahs from the keying.

Voila, CW Morse Code our very first digital mode.

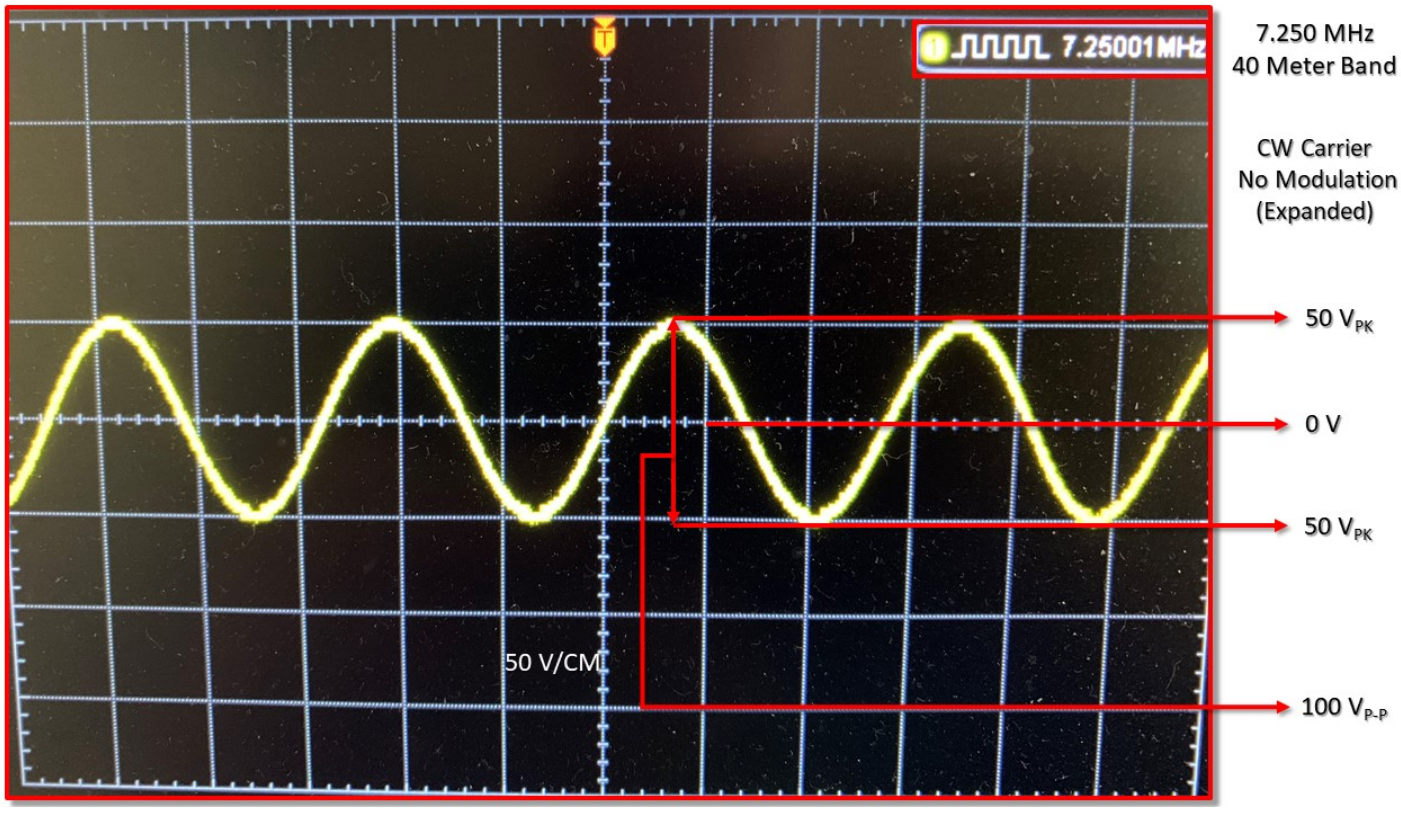
Now, let's add a couple of more options. Mind you, I would NOT do the following modes at 7.250 MHz, but it is certainly feasible. We would want to always follow the rules for modes on the pre-arranged band plan.

One of the options could be Frequency Modulation (FM). FM is a mode that we use most of the time on VHF and UHF, not HF, but if I *were* to frequency modulate this carrier, the carrier would remain the same in amplitude because I am deviating the frequency which is *not* a function of amplitude.

The other option might be Audio Frequency Shift Keying (AFSK). Data modes like FT8, PSK31, and the like, also deviate the carrier's frequency, and, again, this is *not* a function of amplitude. See where I am going with this? The amplitude of the carrier wave does not fluctuate. It does not create the peaks and valleys on the envelope like AM or Single Side Band (SSB) does.

So, what we're saying is that, there really is no "upper" envelope or "lower" envelope when we are operating these modes. Amplitude remains constant.

So, with that being said, finding PEP is a lot simpler. We still use the same equations. PEP $= \frac{E_{RMS}{}^2}{R_L}$ *24.99 Watts $= \frac{(0.707x50V_{PK})^2}{50\Omega}$. Thus, the PEP of the unmodulated carrier *is* the average power. And, that power is 24.99 Watts, or 25 Watts rounded up. So, since CW, FM, AFSK does not affect the envelope, the ratio is, $1 = \frac{24.99}{24.99}$. This is a ratio of *1:1. $Ratio = \frac{Unmodulated\ PEP\ (which\ is\ now\ average\ power)}{Average\ Power}$



This photo is identical to the one above, except in this one, the oscilloscope trace has been expanded out to show the actual sine wave of the carrier frequency as noted by the frequency counter readout in the upper right hand corner. It is still a continuous wave.

OK, so now we can answer our two questions:

G5B11 – Since now we know that an unmodulated carrier is *simultaneously* peak and average, the ratio of peak envelope power to average power on a steady unmodulated carrier is *1:1, or simply 1.00.

The official answer to this question is: ***1.00***

G5B13 – Remember, a steady carrier (Not AM or SSB) illustrates both peak power as well as average power. If your wattmeter reads ***1060 Watts*** *average power*, this is the *same* as *peak envelope power*.

The official answer to this question is: ***1060 Watts***.

There you have it, *Ponder the Pool* for another month. I hope it was helpful. Keep learning. 😊

Stay tuned and we'll do another one next month. – 73 – Gary

If you have any questions or comments, drop me an email at AA6GJ@arrl.net .